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ABSTRACT

This paper focuses on one aspect of a Four Directions Challenge in Technology Grant that deals with the use of telecommunications to facilitate the generation of technology-enhanced, culturally-relevant curriculum. The grant supports the position that technology offers an opportunity for Native Americans to tell their stories in their own voices while participating in the global community. The 19 schools participating in this project access world resources via telecommunication systems and share with the world through the creation of virtual museums, multimedia productions, and curricula that reflect Native American interests, needs, values, and historical richness. Grant goals include: (1) restructuring curricula through building on local cultures and values; (2) collaborating across sites through on-site and on-line training and cooperative teaming; (3) creating networked virtual communities with Internet presence; (4) maintaining a network database of teaching, assessment, professional development, and student-created resources organized by Goals for American Indians, Alaskan Natives, and national standards; and (5) creating a research-based evaluation model. (DDR)

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Technology, Culture, and Integrated Curriculum: An On-line Challenge

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Technology, Culture, and Integrated Curriculum: An On-line Challenge

Introduction

The University of Texas at Austin is a major participant in the Four Directions Challenge in Technology Grant, a five-year program funded by the Department of Education. This presentation focuses on one aspect of that grant, the use of telecommunications to facilitate the generation of technology-enhanced, culturally-relevant curriculum.

In the last five hundred years, the attempt to acculturate Native Americans and to interpret their culture from a non-Native perspective has taken many forms. Technology has been predicted by many to be the final assault, the influence that will finally bring about a homogenizing of American culture in the great melting pot. The Four Directions Challenge in Technology Grant takes an opposite stance, holding that technology offers an opportunity for Native Americans tell their own stories in their own voices while participating in the global community. The nineteen tribal schools currently participating in the project are geographically isolated and culturally diverse. They share, however, the desire to provide their students with cutting-edge technology skills as well as a strong sense of who they are individually, historically, and culturally. The Four Directions school teams include teachers, administrators, community elders, artists, parents, and students. Together they are accessing world resources via telecommunication and sharing with the world through the creation of virtual museums, multimedia productions, and curricula that reflect Native American interests, needs, values, and historical richness.

> Partners in the Four Directions consortium include The University of Texas at Austin, Kansas University, the University of New Mexico, Haskell Indian University, the Bureau of Indian Affair, Department of the Interior, thirteen exemplary Native American schools representing nine states, the Heard Museum, the National Museum of the American Indian, Microsoft, Intel, and other partners.

Goals of the grant include:

- restructuring curricula through building on local cultures and values,
- collaborating across sites through on-site and on-line training and cooperative teaming,
- creating networked "virtual communities" with Internet presence,
- encouraging life-long learning by extending technology support in surrounding communities
- maintaining a network database of teaching, assessment, professional development, and student-created resources organized by Goals for American Indians, Alaskan Natives, and national standards, and
- creating a research-based evaluation model.

The University of Texas' major area of responsibility in the grant is professional development in technology-enhanced, culturally-relevant thematic curriculum. The geographic diversity of the participating schools is, however, a source of challenge as well as a source of richness. Geographic diversity allows each school to bring unique knowledge, experience, culture, and resources to the group. However, geographic

diversity and remoteness challenges us to find new ways to facilitate collaboration and professional development.

To meet this challenge, an on-line course in curriculum development was provided by University of Texas staff for participating teachers in the partner schools. The course was delivered primarily through lessons provided on a home page on the World Wide Web. A bulletin board system (BBS) maintained by staff at the University of Texas provided a virtual forum for synchronous and asynchronous discussions among class participants, the instructor, and other professional resources. The BBS used for this purpose is an Internet-accessible conferencing system that employs FirstClass groupware software and provides private and special-purpose group email, public conference areas with restricted or unrestricted access, chat privileges, file downloading and uploading, and gateways to the Internet.

The class was designed to provide an overview of learning theory and curriculum design models, theoretical and research-based support for a thematic approach, and current reforms that call for thematic curriculum. Particular emphasis was given to addressing the needs of ethnic minorities in curriculum design, accessing technology-based resources, and community publishing via the Internet. Ways to involve the community and home culture of the student and evaluation paradigms and models were included. The targeted outcome of the course is increased proficiency in developing sound thematic curricula that is culturally appropriate, sharable, and effective. Participants were asked to develop, by the end of the course, thematic-based curricular materials appropriate for their own students and for community publishing via the Internet.

Course Description

The purpose of the course is to provide resources, instruction, and support during the development of thematic materials for use in Four Directions Schools. Each lesson is designed to provide background information, resources, and models important in thematic cycle instruction . Each lesson contains instructor comments, reading assignments, links to complementary WWW sites, and assignments. Participants may download all information and complete the work, then upload assignments. The instructor provides feedback by email. The targeted outcome of the course is be increased proficiency in developing sound thematic curricula that is culturally appropriate, sharable, and effective. Participants develop, by the end of the course, thematic-based curricular materials appropriate for their own students. Community publishing via the Internet is encouraged.

Participants are expected to participate in electronic conferences through the Four Directions Bulletin Board System (BBS), in which they share their ideas and insights and benefit from the ideas and insights of the other participants. Most of the discussions are asynchronous; participants may contribute and read the other comments at times convenient to them. Occasionally participants are asked to join a chat in which a number of individuals are exchanging information in real time. When chats are planned, several options are given so that participants may choose chat times that fit their schedules. Group work is encouraged. Participants from a school or from sister schools may work collaboratively to complete a single project.

Challenges of an On-line Course

Assessment of Prior Knowledge

The students in this class represented a wide range of past experiences, goals, educational background. It was difficult for the instructor to set the level of instruction and

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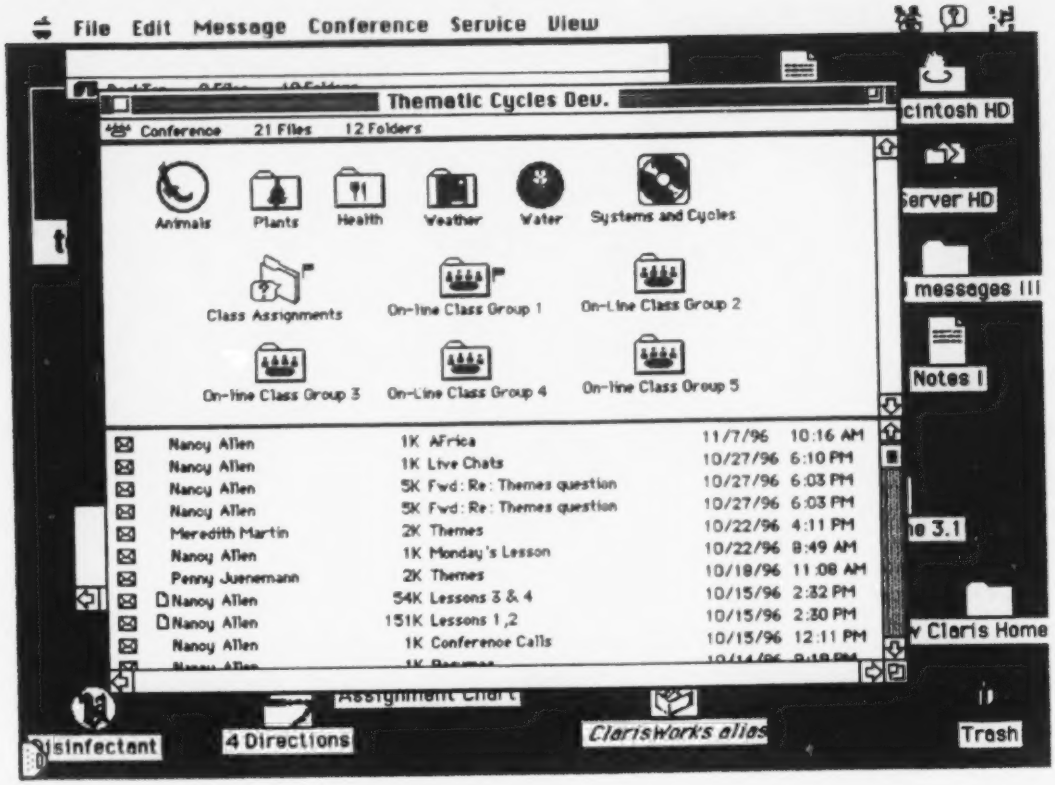
expectations. Many students became frustrated and dropped-out of the course befor the professor could make appropriate modifications to the curriculum.

Non Traditional Lesson Design

In designing a traditional lesson, an instructor plans for interaction with the students. The specific direction of instruction may change in response to student base-knowledge, interest, or learning rate. In an on-line course, the lesson is presented as a finished product. Special care must be taken to prevent a sterile, pedantic style. Strategies that may help are to provide options— such as alternative assignments, conferences, or suggested web sites— and to deliberately include student input as often as possible. The support provided by the Four Directions BBS was found to be very important in the course, as it provided opportunity for the students to interact with each other, share ideas, and provide and obtain peer support. The major conference areas on the Four Directions BBS currently include:

- **4D Teachers**, where project teachers discuss issues that concern their role in the project. Student access to this area is restricted.
- **4D Students**, where students can discuss issues that concern them.
- **Thematic Cycles Development**, an area specifically for information and activities for the class and for thematic cycle materials development.
- **4D Schools**, where each school may have a conference space of their own for on-line learning projects. These areas also provide opportunity for other schools to learn about each partner school.
- **4D Technologies**, where teachers and students share their expertise on the various technologies used in the project.
- **TeachNet File Area**, where freeware and shareware files are offered for fun and work.
- **USENET/ONENET**, where appropriate selections from the thousands of Internet newsgroups are offered for the use of teachers and students.

Figure 1. The Thematic Cycles Conference Area


File Edit Message Conference Service View
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Weather
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On-line Class Group 1
On-Line Class Group 2
On-line Class Group 3
On-Line Class Group 4
On-line Class Group 5
Nancy Allen 1K AFrica 11/7/96 10:16 AM
Nancy Allen 1K Live Chats 10/27/96 6:10 PM
Nancy Allen 5K Fwd: Re: Themes question 10/27/96 6:03 PM
Nancy Allen 5K Fwd: Re: Themes question 10/27/96 6:03 PM
Meredith Martin 2K Themes 10/22/96 4:11 PM
Nancy Allen 1K Monday's Lesson 10/22/96 8:49 AM
Penny Juenemann 2K Themes 10/18/96 11:08 AM
Nancy Allen 54K Lessons 3 & 4 10/15/96 2:32 PM
Nancy Allen 151K Lessons 1,2 10/15/96 2:30 PM
Nancy Allen 1K Conference Calls 10/15/96 12:11 PM
cintosh HD
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Hardware and Software Problems

When the course was planned, it was thought that by the starting date all schools would have a telecommunications infrastructure in place and all staff would have basic telecommunications skills. That was not the case. The instructors found themselves instructing students individually, by telephone, guiding them through the initial steps in telecommunications and providing technical support. Technical support was found to be a key element for the success of the course.

The students were working through a variety of providers, with diverse equipment. Often there were breakdowns. The students found this frustrating and the stressful. Although the students were told repeatedly that they would in no way be penalized because of technical difficulties, habits formed through years of traditional schooling were hard to break. The students became very upset when a lesson was "late" because of connectivity problems. Students found themselves competing for equipment and on-line time with peers. Activities that were originally planned as synchronous became unavoidably asynchronous. Problems became opportunities for learning, as students began to download and share lessons, peer tutor, and experiment with diverse modes of receiving and transmitting data.

Virtual Versus Physical Presence

Perhaps the greatest challenge of an on-line, versus a traditional, class is the absence of physical presence. Students voiced distress over not knowing who the people in their conference groups were. This problem was mitigated by asking all students to file a resume, with a picture is possible, on the FirstClass BBS, which would be accessible by other students. Assignments were given that encouraged students to directly contact (electronically) other individuals in the class. Students are asked, for example, to read the submitted homework of other students and give specific feedback in a personal message. Students with common interests were matched and instructed to contact each other to share resources. Live chats were also useful in helping students relate to virtual communication.

When requested, on-site inservices were planned for any schools with two or more registered students. Although the on-site workshops often repeated information accessible on-line, students repeatedly reaffirmed the importance of face-to-face communication. The following quote from a student email message expresses the importance of the on-site visit.

> Thanks for all the time you spent with us at the * School. I really appreciated it. I am finding that meeting you in person has really clarified some things for me regarding the Internet Class. I can't believe how much I need the personal contact to make things connect.
> Before your visit I was lost with the Thematic Approach. I think I have the concepts now.
> I also wanted you to know that we, at * School, were not able to join the chats this week. My computer was done till yesterday. M.'s computer is still down. I hope you will reschedule this activity so we can take part.

A second quote more graphically illustrates the difference face-to-face contact means:

> It was just too hard. I had a picture of Dr. Allen in my ind. She was a mean old witch, 100 years old, who had never been in a classroom.Then she came to our school, and I met her. "Hey," I said. "this isn't hard!"

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A Learning Model

In evaluating the process of the class, a learning model was developed and carefully examined for points of weakness (Figure 2). The problem areas were identified student prior knowledge and learning strategies, and in peer-supported on-line and off-line activities.

Summary

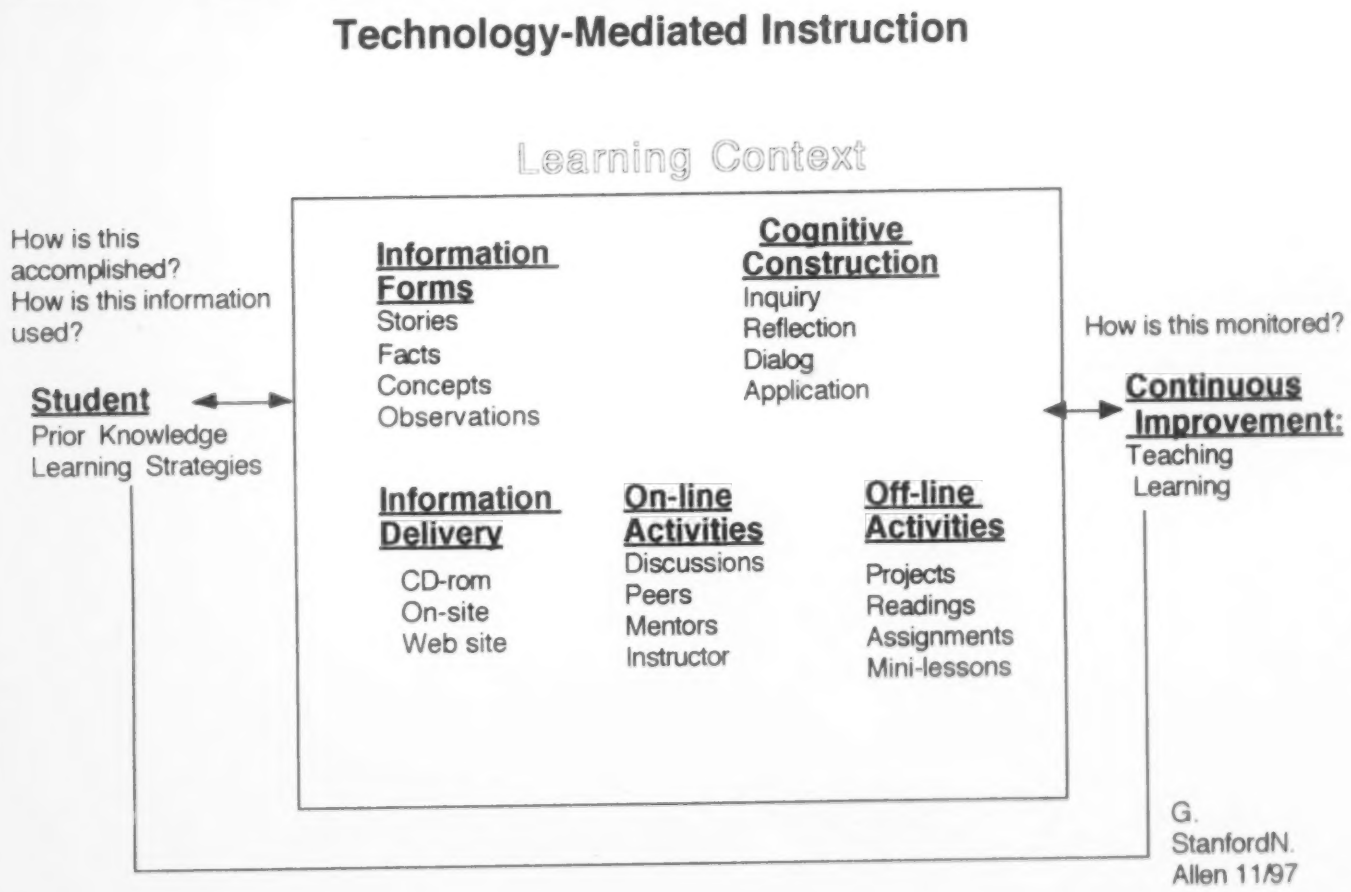
The kind of systemic reform that is the goal of the Four Directions Project requires innovation, hard work, and time. Success is measured in small increments, as collaboration builds among participants across the nation, teachers become peer-instructors and resources for curriculum design, and community-centered curricula emerge. It is just these changes that are occurring, as expressed in such exchanges as the one following. As the course draws to a close, the instructors are anticipating quality projects that reflect the cultures of the different participating communities.

> From: A.....
> Subject: Wolves
> To: S.....
> Cc: Nancy Allen
> Boozhoo S....,
>
> Nancy tells me you are working on wolves.
> I have done a one week mini unit on wolves and have put together some resources to go with this. Check out the Thematic Topics on our Home page http://www.ojibwe.pvt.k12.mn.us
>
> There is also a curriculum available online at:
> gopher://informns.k12.mn.us:70/11/best-k12/wolf/wolfguide
>
> I also have several print resources. let me know if I can be of help
>
> A....

Class homepage:

http://www.edb.utexas.edu/projects/allen/welcome.html

Figure 2: Learning Model for Technoogy-Mediated Instruction



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